

Name: _____

Date: _____

Exam: Function Reflections (EXAM version 610)

1. (worth 9 points) Let function f be defined by the polynomial below:

$$f(x) = 4x^4 - 5x^3 - 7x^2 + 9x - 2$$

Draw lines that match each function reflection with its polynomial:

Reflections

Polynomials

$-f(x)$ ●

● $4x^4 + 5x^3 - 7x^2 - 9x - 2$

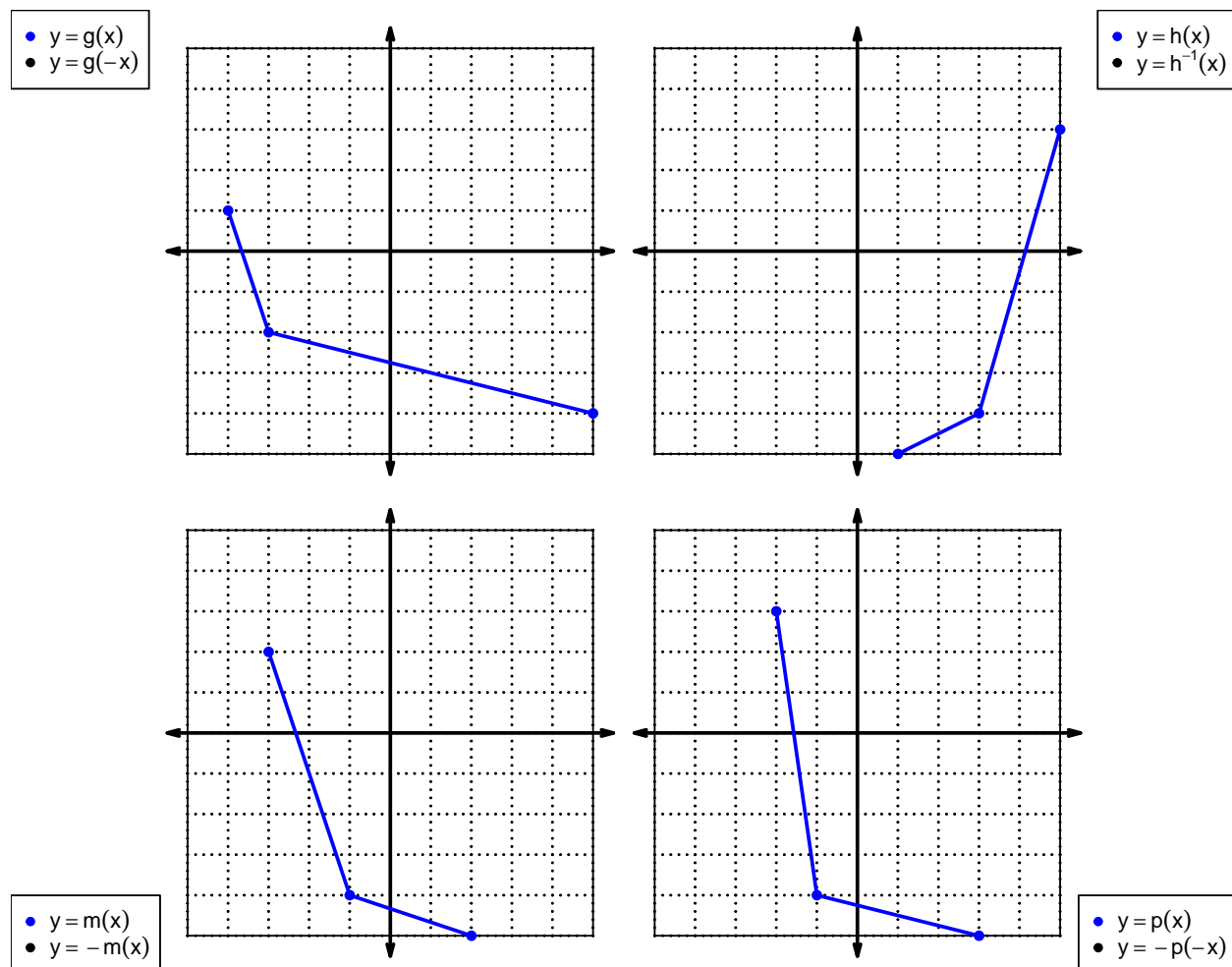
$f(-x)$ ●

● $-4x^4 + 5x^3 + 7x^2 - 9x + 2$

$-f(-x)$ ●

● $-4x^4 - 5x^3 + 7x^2 + 9x + 2$

2. (worth 20 points) In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.



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For all questions on this page, the functions f , g , and h are defined by the table below.

x	$f(x)$	$g(x)$	$h(x)$
1	4	8	5
2	5	2	1
3	3	1	4
4	7	9	9
5	6	6	8
6	9	3	2
7	1	5	6
8	2	4	7
9	8	7	3

3. (worth 3 points) Evaluate $f(9)$.

4. (worth 3 points) Evaluate $g^{-1}(3)$.

5. (worth 3 points) Assuming g is an **odd** function, evaluate $g(-2)$.

6. (worth 3 points) Assuming h is an **even** function, evaluate $h(-5)$.

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7. (worth 15 points) A function, f , is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g , is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) = -x^3 + x$$

- a. Express $p(-x)$ as a polynomial in standard form.

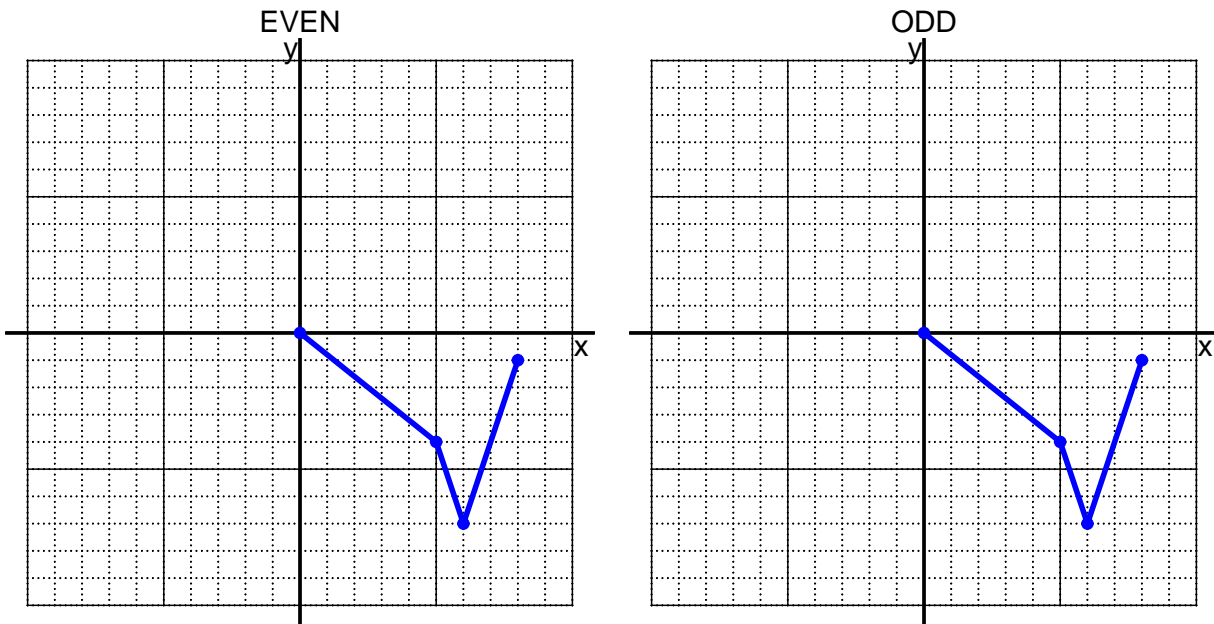
- b. Express $-p(-x)$ as a polynomial in standard form.

- c. Is polynomial p even, odd, or neither?

- d. Explain how you know the answer to part c.

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8. (worth 10 points) I have drawn half of a function. Draw the other half to make it even or odd.



9. (worth 10 points) Let function f be defined with the equation below.

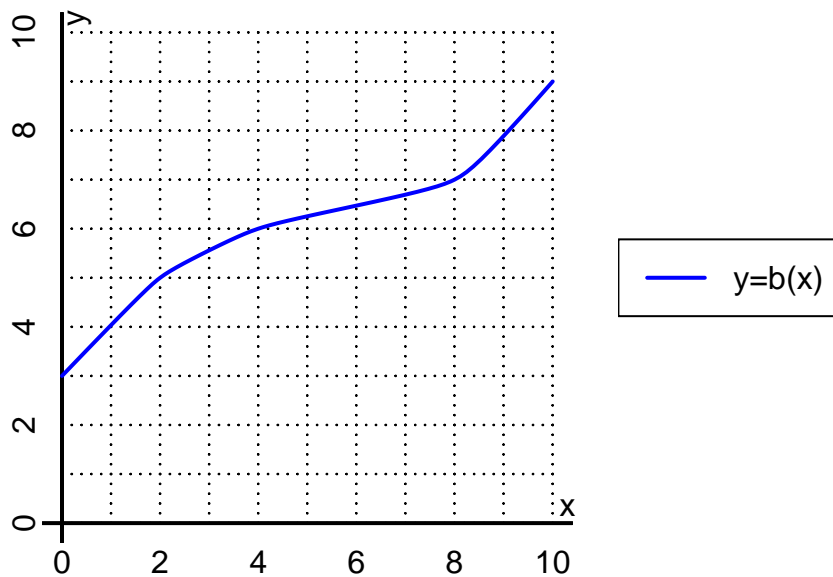
$$f(x) = \frac{x}{6} - 8$$

a. Evaluate $f(72)$.

b. Evaluate $f^{-1}(5)$.

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10. (worth 6 points) The function b is represented by the curve $y = b(x)$ graphed below.



a. Evaluate $b(2)$.

b. Evaluate $b^{-1}(6)$.

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11. (worth 18 points) Function f is defined by the table below.

a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

x	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	-5			
-1	9			
0	0			
1	9			
2	-5			

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?